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FOR SOFTWARE MANAGEMENT

J. Fleming

AUGUST 1971

Prepared for

DEPUTY FOR COMMAND AND MANAGEMENT SYSTEMS
ELECTRONIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
L. G. Hanscom Field, Bedford, Massachusetts

Project 572R

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Bedford, Massachusetts

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THE AUTOMATED USE OF BIBLIOGRAPHIES
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FOREWORD

This report presents the results of analyses conducted by The MITRE Corporation, Bedford, Massachusetts under Contract F19(628)-71-C-0002. Dr. John B. Goodenough (ESD/MCDT-1) was the ESD project monitor.

REVIEW AND APPROVAL

This technical report has been reviewed and is approved.

P. A. Veckem
for

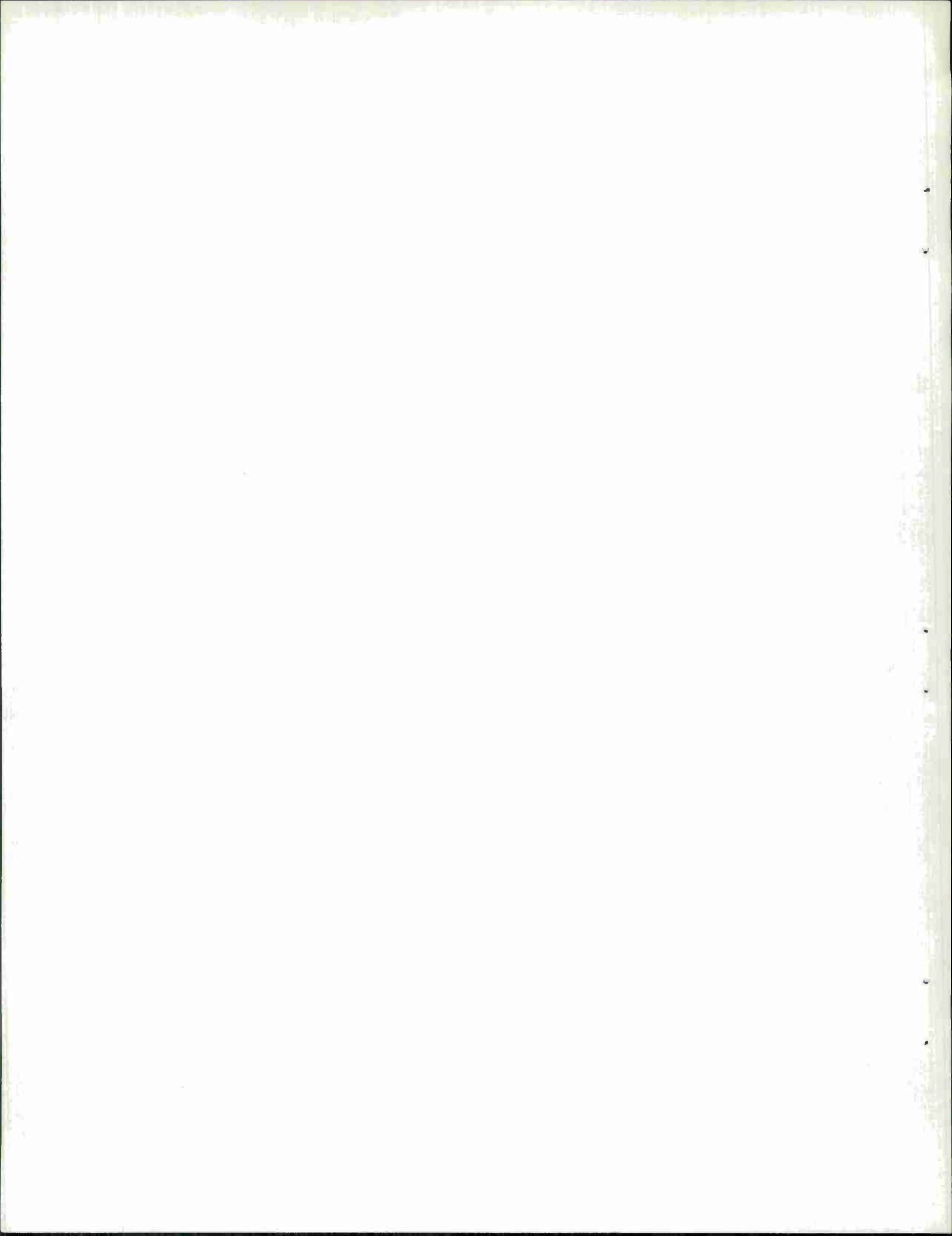
EDMUND P. GAINES, JR., Colonel, USAF
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ABSTRACT

The structure of bibliographies in computer-accessible form is described. Its design seeks to use the capability of an existing general-purpose text-processing system to query a file interactively in such a way as to increase the automation available to readers consulting a bibliography. Volume I contains an example of such a bibliography.

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SECTION I

INTRODUCTION

Historically, bibliographic entries have been constructed and consulted by the effort of humans, unaided by automation. Technological advances make it possible now, or in the near future, for both the construction and the consultation to be significantly less burdensome to the human.

The construction of an entry can be automated by the selection, with possible reformatting, of facts about a work published by an automated procedure from the medium (as, tapes) produced in order to effect its printing. Alternatively, the facts for an entry could be obtained from the publication itself by optical character reading, followed by the same necessary selection and reformatting.

The consultation of a bibliography can be automated by application of the search capabilities present in general-purpose text-processing systems or, alternatively, by use of systems specifically designed or adapted to bibliographic use.

A significant portion of the documents selected for the present purpose incorporate DOCUMENT CONTROL DATA - R&D, DD Form 1473. This fact and the availability of information required or permitted by it have influenced the information design of the bibliography in certain respects, which will be pointed out when data obtained from the form are described below.

An example of DD 1473 may be found in Appendix A.

The present experiment in partial automation of the processes of construction and consultation of a bibliography reflects a state in between the two polar conditions of manual and automated function described above.

The abstracting of facts about each document and their input to the file have necessarily been performed by the customary human effort, but these facts have been cast in such a form that the possibility of automated consultation of the bibliography has been provided for.

To date, the experimental work undertaken has reached only a partial state of completion. Facts about the works selected for the bibliography have not been consistently indexed because the design has been developing and changing during the time that the indexing was being performed. Works indexed earlier have not been reindexed as the design was altered. Rather the emphasis of the indexing effort up to now has been placed on completeness of the bibliographic file, that is, on entering all the documents selected into the file rather than making revisions so as to obtain a consistent indexing of a lesser number of documents.

The current state of the experimental bibliographic file is reflected in the computer listing of BIBTRANSLATORROUTINES which is found in Appendix A of (1). The development of the bibliography up to this time is described here.

A selection of roughly eighty documents dealing with the problem of moving a software system from one operating environment to another was made by H. A. Bayard, as described in (1).

In view of the availability of the MITRE general-purpose text-processing system with certain text-handling capabilities such as sorting and searching, it was decided to design a format for the bibliographic data which would be compatible with that system. To take advantage of the text-handling capabilities available, the design of the bibliography includes a citation index. The citation feature has so far been only partially implemented in the bibliography. For the same reason, and also because a substantial proportion of the documents have had key words assigned to them by their authors, a key-word feature has been included in the design of the bibliography.

SECTION II

STRUCTURE OF DATA

INTRODUCTION

Each bibliographic entry, enlarged from the content of a typical entry by the extensions indicated in the introduction, forms an integral unit called an item. Items are recognizable by a first line and a last line, lines IM and V , respectively, which are mandatory for compatibility with the text-processing system.

Each item comprises a number of elements, which are introduced by index labels or tags. Some elements may contain sub-elements. These structural units are described under TEXT FIELD, below.

The bibliographic entry contains a number of units of data which are considered compulsory if they are present in the source; i.e., the data are indexed in the file whenever the given document contains any such data. The motivation for these units lies in the purpose and resulting design of the bibliography rather than responding to any consideration of compatibility with a particular text-processing system. The compulsory units will be pointed out as they are individually described.

Data are input as cards of 80 columns, of which the first 72 contain text, that is, the bibliographic entry itself, and the remaining field of eight columns is reserved for other data, including codes used in editing, sorting, and searching operations. Without reformatting, each card image produces one printed line on the cathode ray tube display at the terminal presently in use. The codes are discussed first.

CODE FIELD

Each card is indexed with a numerical line-ending code in column 73. The codes in use are: 0 1 2 3 5. Each of these codes indicates how many of the blanks following the last non-blank character of the card so coded are significant. If that character is final in a data element, the proper code is 5. If it is final in a sub-element, the code is 3. If the character is a colon, the code is 2; if a hyphen it is 0. In all other cases, the code is 1.

Columns 74 and 75 contain an alphabetic category code. Category codes in use include: AC corporate author; AP personal author; C cites; I identification; IM identification (mandatory first line of each item); K key words; P facts of publication; T title; V mandatory last line of each item (the line is otherwise blank). When one line is inadequate to contain the desired information, the data are continued on the following line, to which the same category code is assigned. As a minor exception, because certain routines in the MITRE text-processing system assume that the first line of an item carries a unique code, IM is a proper code for a first line of the identification element and I is used only for a continuation line. The content to which each of these codes relate is discussed below under TEXT FIELD.

The presence of the line-ending codes and the line category codes permits compacting of the file so as to eliminate nonsignificant blanks. Sometimes such compacting properly results in combining two adjacent lines which are of the same coded category. The same facility would allow conversion of all items from card-image to sequential format, should such conversion be desired in the future.

Card columns 77-80 constitute the field for line numbers of a file. These line numbers are not contained in the internal representation of the file but are supplied during output to the display terminal.

TEXT FIELD

The nature of the individual bibliographic data indexed in the text field of the card is indicated by a preceding index label or tag. (The text field is left-justified.) Brevity in the tags is obtained by the use of standard American English abbreviations from American Heritage Dictionary of the English Language, William Morris, editor (New York: American Heritage Publishing Co., Inc. and Houghton Mifflin Company, 1970). Their status as abbreviations indicates that their mnemonic value has been established and eliminates any need to provide glosses for the tags used in the file. Tags are punctuated by following colons, separated from the index elements they label by two blanks.

Identification Data

For each item, the identification element (tag I.D. :) contains compulsory facts about the document being indexed which may be useful in locating a desired item within the file (see 1 below) or in obtaining a needed document from the author, the agency responsible for its distribution, or a library or other holder of a pertinent collection of documents (see 2 below).

Typically, the identification element contains several of these additional facts about a work which can contribute to serving the needs of the user of the bibliography. These facts are treated as sub-elements in the file.

1. A code devised by the late H. P. Luhn (2, p. 231) was adopted for local use in identifying this selection of documents because it is intrinsically more meaningful than a serial accession number. It also permits the ordering of the items in much the same sequence as a typical alphabetically ordered bibliography by a sort operation on only 11 character positions. For a file of moderate size, such as this one, a sort on even as few as six character positions produces a useful result. This capability effects a saving when compared with the amount of running time and program complexity which would be required to sort on the name of the author and the title of the document.

A description of the structure of the Luhn code follows:

- a. The first six characters identify the (senior) author or editor:
 - (1) For a person: characters 1-4 are the first four letters of his name, 5 and 6 are his (first) two initials. The hyphen is used as a filler character. SNOWAB would be used for A. B. Snow, DOE-J- for John Doe.
 - (2) For a corporate or institutional source or the like (where a personal author is not credited): the first character is -; characters 2-6 are alphabetic characters representing the name of the organization. The criteria for the selection of codes were accepted usage and mnemonic value. A valuable guide to usage was found in Ellen T. Crowley and Robert C. Thomas, editors, Acronyms and Initialisms Dictionary, third edition (Detroit, Mich.: Gale Research Company, 1970), Appendix

B contains a list of some shorter versions of corporate names which appear in the experimental bibliographic file in (1).

- (3) For the name of the publication in which the paper or article was published (when neither a personal nor a corporate author is credited): the first character is +. +ELECN may be used for Electronic News.

- b. Characters 7 and 8 of the Luhn code are numeric; they represent the final two digits of the year of publication. 70 is used for 1970; -- for an undated document.
- c. Characters 9-11 are alphabetic, representing the initial letters of each of the first three substantive words of the title. CNT is used for "A Cooperative Network of Time-Sharing Computers: Preliminary Study."
2. Identification numbers assigned by other holders of the document follow the Luhn code. The AD number assigned by the Defense Documentation Center forms the first sub-element for those documents to which an AD number has been assigned, since it is a primary identifier in the MITRE library. The MD number, if one has been assigned by the MITRE library, follows the AD number. The remaining sub-elements are any identification numbers found in blocks 9a and 9b of a DD 1473 for the given document or appearing within the document proper, or on a microfiche made from it (where the microform served as the source document). No identification associated with the document has been intentionally omitted from the identification element.

The category code for the first line of the mandatory identification element is IM; if there are continuation lines, they are coded I.

Title Data

The title element (tag TITLE:) contains the full title of the document, omitting any initial non-meaningful words, such as articles, or phrases, such as "On the." "A Cooperative Network of Time-Sharing

Computers: Preliminary Study" appears as TITLE: COOPERATIVE NETWORK OF TIME-SHARING COMPUTERS: PRELIMINARY STUDY. The line category code for the compulsory title element is T.

Author Data

The compulsory author element (tag AUTH. :) may represent either a personal or a corporate author. In the absence of an author, the name of an editor may appear among the bibliographic facts for the document. In such a case, an editor element (tag EDIT. :) takes the place of an author element. Except for the difference in the tag, editor elements are constructed according to the pattern for author elements.

The names of authors other than the senior author are treated as sub-elements, comprising, together with the name of the senior author, the author element. The names of all personal authors are inverted, not just that of the senior author, so that one author's name will appear in the same arrangement wherever it is found.

The surname of each personal author is followed by the given names or initials shown on the document, without punctuation. AUTH.: ROBERTS L G MCCAFFREY EDWIN MARILL T JONES JOHN B III LT is an example.

A corporate author is treated as the author element only in the absence of a personal author. Corporate authors are often identified by block 1 of DD 1473. Frequently, the title page of the document or block 1 names a sub-unit of the corporate agency, in which event the sub-unit is treated as a sub-element. AUTH.: MASSACHUSETTS INSTITUTE OF TECHNOLOGY LINCOLN LABORATORY is an example.

A personal author is distinguished from a corporate author by the line-category codes, AP and AC, respectively.

Facts of Publication

The facts of publication are treated as a series of compulsory elements, each with its index tag.

For an article (whose title appears in the T line of the item) in a periodical: TITLE: is followed by the name of the periodical; VOL.: by two numeric characters indicating the arabic number of the volume containing the article and by the issue number if this is necessary or useful, the two numbers being separated by a period; PP.: introduces the two four-digit inclusive page numbers separated

by a hyphen; DATED: is followed by the date of publication in the format YY.MM.DD with six, four, or only two digits. In the date format scheme, YY indicates the year, MM the month, and DD the day of the month. Numerics are right-justified, with leading zeroes included where required. TITLE: IBM SYSTEMS JOURNAL VOL.: 06.06 PP.: 0267-0302 DATED: 67 is an example.

For a book (no example occurs in the experimental file), PUB.: is followed by the name of the publishing agency, which may include, besides publishing firms, societies, institutions of learning, and the like. PLACE: is followed by the name of the country or state and the name of the city where the book was published. PUB.: MACMILLAN CO. PLACE: NEW YORK NEW YORK DATED: 55 is an example.

For a paper or monograph published under the name of one or more personal authors, a corporate agency such as is cited in block 1 of DD 1473 is considered as a kind of "publisher." Its name and geographical location are shown, together with the date, found in block 6. AUTH.: SIGNATRON, INC. PLACE: MASSACHUSETTS LEXINGTON 02173 DATED: 68.06 is an example. The geographical location is shown with the units arranged in order of decreasing size, as here state before city, and with the zone improvement plan (ZIP) code last. Street addresses have been included for possible convenience of readers. In a larger file considerations of space would probably preclude their inclusion.

The tag AUTH.: has been used for publisher-like information because the same agencies (an example from the experimental file is System Development Corporation) may appear in block 1 of DD Form 1473, both in the presence and in the absence of a personal author. The use of the same tag in both instances may simplify the framing of a computer search query seeking a report of work done under the auspices of the agency, whether a personal author is credited or not. These two functions sharing the code AUTH.: are distinguished by their category codes.

For a monograph published without designation of a personal author, the name of the "originating activity (corporate author)" has been omitted from the facts of publication, since it already appears as corporate author in a line coded "AC." Its dual status as author and "publisher" is implicit in the absence from the bibliographic record of a personal author. Accordingly, the repetition of its name in a "P" line is unnecessary. The facts of publication may be limited to "PLACE:" and "DATED:" in such cases.

The line-category code for the elements together comprising the facts of publication is P.

Citation Data

Most of the publications upon which the bibliographic entries in this file are based contain either a bibliography or a list of references (both are present in at least one document).

For each item the citation element (tag CITES:) contains an alphabetically ordered list of identifiers of documents cited by the document being indexed. The identifier listed is the Luhn code, which is constructed entirely from the information provided in the citing document, even though this information may be incomplete. The document whose own bibliographic entry begins I.D.: MONDLF67VCS contains the citation line CITES: FELDJA64FSC FELDJA66FSC FLOYRW61DLS, which represents the three documents the author Lee F. Mondschein cited in his bibliography or list of references.

For the optional citation element, the line-category code is C.

While the design contemplates that the list of cited documents will be alphabetically ordered, many deviations from that sequence may be found in the file.

The text-processing system at present contains no facility for sorting at the hierarchical depth at which these identifiers are located. Editing capabilities do exist which will permit ordering of these sub-elements by on-line procedures.

Key Words

For those documents incorporating a DD 1473, the author usually provides a list of key words in block 14.

For the key words element (tag KEY WD.), the individual key words are treated as sub-elements.

The line-category code for the optional key words element is K.

Last Line

In order to be compatible with the text-processing system, each item must have a uniquely coded last line. In the experimental file, the mandatory item terminator (tag null) contains a null element. An advantage is thus obtained that the text field contains a blank line which serves the human user by visually separating each two adjacent items.

The line-category code for the mandatory terminator line is V.

GENERAL

The elements of the bibliography are those usual in technical writing in the United States except for the citation and key words elements. Background information regarding the inclusion of both is provided in Section I, INTRODUCTION.

As an interim procedure for elements such as the citation element and the key words element, which are optional elements since some documents lack them, the tag appears in the experimental file with a null element as an indication to the indexer while work on the file is in progress that the element is, in fact, lacking in a given document.

When the file has been completely indexed, these tags will have served their purpose and the line where each appears will be deleted.

The presence of the line-category codes described above makes it possible for the MITRE text-processing system to operate on a properly configured text field. The most pertinent operations are searching and sorting.

A listing of one possible arrangement of the experimental file is found in (I). The last few items are credited to corporate authors, in the absence of a personal author. In other respects, the file shows the same sequence as an alphabetically ordered bibliography.

The uses which have been made of the text-processing system to bring the experimental file to its present state include: use of the editor to correct errors in keypunching by substituting or permuting characters and to correct errors in indexing by inserting lines with tags and elements or with tags and null elements; and use of the sorting capability to order the Luhn codes of the citing papers, and hence the items representing them, in alphabetical sequence.

SECTION III

AUTOMATED USE OF A BIBLIOGRAPHY

With a body of bibliographic information available in such a form as has been described in Section II, a user can repeatedly search that file up to a point where he is satisfied that he has found almost all the references pertinent to his need.

A description of one possible path his efforts might take follows.

He looks at a listing of the bibliographic file (henceforth BIB) and notices that Gardner has an item whose title contains the word "list-processing." He queries the file BIB for all occurrences of LIST* on T or K lines, so as to learn whether there are other papers in the file which have a similar word in their titles or as one of their key words. A full explanation of how queries are entered and choices made about presentation of the responses to those queries may be found in (3).

Next he looks for the particular list-processor LISP* in lines of the same categories.

Then he follows up whether Gardner's paper has been cited by any other paper in the file BIB by searching for occurrences of GARD on C lines.

After that he investigates whether colleagues of Gardner might be represented by papers having a bearing on his although not citing his paper. He can explore this possibility by searching for occurrences of both UNIVERSITY OF CALIFORNIA and LOS ANGELES in AC or P.

After any of the searches suggested above, the nature of the response obtained might lead him to follow a different path from that indicated.

SECTION IV

POTENTIAL EXTENSIONS OF BIBLIOGRAPHIC TECHNIQUES

An extension of the citation feature represented in the experimental bibliographic file would be to represent the cited documents as items with their own independent entries derived from the list of references contained in the citing document which referred to them (provided they are not already present in the file as citing documents).

For example, say that citing paper a cites papers p and q. The item for a contains an identification line I.D.: A . . . and a citation line CITES: P Q . . . in the present file. If neither p nor q is in the file now, when the extension is implemented, two items will be added: I.D.: P . . . CITED BY: A . . . and I.D.: Q . . . CITED BY: A . . .

An investigation of "the feasibility of analyzing relationships between citing and cited publications into a fairly small number of categories of probable value to physicists . . . through inspection of actual papers and their bibliographies in physics journals" is reported in (4). Four major groups containing 29 categories were identified.

Group One (eight categories) describes the "citing article's . . . relation to science in general," such as description of observed phenomena or hypothesis or theory. Group Two (three categories) described the citing publication's "administration or associative relation to science in general," such as review article or bibliography. Since Groups One and Two deal with the citing article only, they need be listed only once for each citing article.

Group Three (seven categories) describes a "continuity relationship between the cited paper and the citing paper which is independent of the . . . contribution," such as shared authorship or continuation. Group Four (eleven categories) indicates a "disposition relationship" between the citing paper and the cited paper, such as "changed the scope of applicability (plus or minus)" or "questioned (expressed doubt)." The categories of these two groups, since they involve the cited paper as well as the citing paper, may differ for each paper cited by a single citing paper.

A certain amount of adaptation would be necessary in order to apply this scheme, which was elaborated on documentation in the physics discipline, to the topic of software management, as follows:

Group One Original Intellectual Intent of the Citing Paper

1. Description (as, of a software implementation)
2. Definition (as, of a software concept)
3. Evaluation (as, of a software design)
4. Recommendation (as, for an application of software)

Group Two Contribution of Citing Paper other than Original Intellectual Intent

5. Review article
6. Bibliography
7. Data cumulation

Group Three Identity of Continuity Relationship of Citing Paper to Cited Paper

8. One or more authors in common
9. Same text
10. Abstract or condensation
11. Erratum
12. Continuation
13. Precursor
14. Inclusion

Group Four Disposition of the Intellectual Intent of the Cited Paper in the Citing Paper

15. Noted only
16. Distinguished
17. Reviewed or compared
18. Applied
19. Improved or modified
20. Replaced
21. Changed the precision (plus or minus)
22. Changed the scope of applicability (plus or minus)
23. Questioned
24. Affirmed
25. Refuted

While there seems to be little doubt that indicators of categories such as are listed above would benefit citation users materially, Lipetz observes that "analysis of actual publications for the purpose of determining relationships according to the scheme described . . . is neither simple nor rapid." A trial application with a voluntarily cooperating group of citation users would be necessary to determine its desirability in a given setting.

Selecting key words from an unrestricted vocabulary has the disadvantage that an author assigning key words to a work he has written (or an editor or indexer doing so in his stead) and an index user who has a current need for such a publication may not share a common understanding of the interpretation and scope of the key words which the author has assigned.

The use of any restricted list of terms (thesaurus) known to both the author and the prospective user has the advantage that key words selected from such a list convey meaning not only because the selected term is present in the list but also because other terms are also present which were not selected. When the reader consults the list of terms and then attempts to match his selection of likely terms against an index of documents, he can profit by the sort of negative information described above, as well as profiting by the positive information.

When the document has been indexed from a free and unrestricted vocabulary of terms, the reader has only the positive information to guide his selection of potentially interesting documents.

Other things being equal, a hierarchically structured thesaurus can express precision of meaning more concisely than a non-hierarchical one. A hierarchical thesaurus suitable for providing key words for documents having such subject matter as the question of moving a software system from one operating environment to another is (5). Its title page states, "This book is a major revision of an earlier title . . . ; this revision was prepared in joint operation with the United States Department of Defense."

An appropriate extension of the work already performed under the present project would be the assignment of key words from (4) to the documents indexed in the file of (1). Either indexers or users might assign these key words. An indexer would reflect his total understanding of a document in a single effort.

If the cooperative effort of users were enlisted, a list of descriptors for a document might be gradually built up by soliciting a report of the reader's experience with the document. If he had a

current interest in topics a and b which lead him to consult a certain document, he might report that he found useful information about b but nothing regarding a. Accordingly, key word b can be assigned to the document.

The response of a user who failed to find any useful information in the same document can be of equal value to the response of the more successful user in the construction of the wanted list of key words for the document. If he were interested in topics b and c but reported that he found no useful information in the document, which instead deals with d and e, key words d and e can be assigned. At this point three key words which will be of value to potential users of the document will have been associated with the document.

In time a state can be reached where, for most of the documents in the file, users need not be asked to recommend key words for assignment to documents in the collection which they consult. Their suggestions for deletions of key words will always be of value, of course.

J. Fleming

J. Fleming
Intelligence and Information
Systems

JF:dmk

APPENDIX A
A SAMPLE BIBLIOGRAPHY ON TECHNIQUES
FOR SOFTWARE TRANSFER

SECTION I

INTRODUCTION

This bibliography represents a collection of documents pertaining to software transferability; in particular to software transferability as it relates to Air Force Systems problems.

The problem of moving a software system from one operating environment to another has primarily been dealt with in two ways;

1. On the administrative level: by providing similar operating environments, by constraining programmer behavior to increase the possibility of easy transfer of software, etc.
2. By providing automatic and semi-automatic techniques which aid in the translation of software systems which work in one environment to software systems which work in a second.

The articles mentioned here deal with the second approach: what automatic and semi-automatic aids exist for translation of software systems; what techniques and theory exist which, when applied to language and language processor design, simplify the problem of software transferability; and what techniques and theory exist which might be applicable to the design of automatic and semi-automatic transfer aids. Since JOVIAL is the official Air Force command and control language, special emphasis was given to collecting documents concerning systems written in it and concerning the transferability of JOVIAL systems.

SECTION II

SOURCES

The documents were collected as the result of searches of several different sources:

1. Computerized search from the Defense Documentation Center for Scientific and Technical Information at Cameron Station, Alexandria, Virginia, with the following keywords:

SEMANTICS OF PROGRAMMING LANGUAGES
JOVIAL
EXTENDIBLE LANGUAGES
INTERPRETER ROUTINES
TRANSLATOR ROUTINES
TRANSLATING and COMPUTERS
COMPILERS
SIMULATION ROUTINES and COMPUTERS

2. Manual searches at MITRE of:

Computing Reviews: The Association for Computing Machinery (from January 1965)

Computer and Control Abstracts: The Institute of Electrical and Electronics Engineers Inc. (from January 1969)

Scientific and Technical Aerospace Reports: National Aeronautics and Space Administration (from January 1969)

Government Reports Announcements: U. S. Department of Commerce National Technical Information Service (from January 1969)

While the manual searches were duplicated in part by the computerized search, relevant documents were found by both techniques which were not found by the other method. This was due to the fact that the computerized search had available to it documents from a longer time span, and that the manual searches were not limited to the keywords mentioned above.

SECTION III

STRUCTURE

The bibliography is maintained as a file in SHOEBOX--an on-line interactive text processing system developed at MITRE. As a result, the bibliography can be randomly browsed through or computer searched for specific requests by the SHOEBOX user. The listing of the bibliography in this document is a printing of the SHOEBOX file.

Each line in the file consists of a text portion (the first 72 characters on the line) and a three character code portion. The first character of the code portion, a number, is for SHOEBOX's use and should be ignored. The second and third characters of the code portion of a line identify the kind of information found on the line. In this file the following codes and meanings are used:

'IM'	'I '	identification information; also indicates the first line of an item in the bibliography
'T '		title information
'AP'	'AC'	author information
'P '		publication information
'C '		citation information
'K '		keyword information
'V '		indicates the end of an item in the bibliography

Each item in the bibliography consists of six sections:

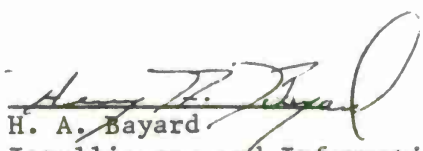
1. Identification section--The identification numbers associated with a document are maintained on the 'IM' and 'I ' lines of an item. The identification numbers associated with a document consist of, at minimum, the Luhn code* of


*Claire K. Schultz, editor, H. P. Luhn: Pioneer of Information Science, Selected Works, New York, Spartan Books, 1968, pp. 230-231.

the document. In addition, if available, the AD number and the MD number (MITRE document number) of the document are given. Finally, if any other identification numbers are attached to the document, they are also present.

2. Title section--The title of the document is found on the 'T ' lines of an item.
3. Author section--If there is an individual author, then his name appears on the 'AP' lines of an item. If there is no individual author, then, when available, the corporate author of the document appears on the 'AC' lines of an item.
4. Publication section--Information about publication of the document is found on the 'P ' lines of an item. If there is a corporate author which was responsible for publication of the document, the name will only appear in the author section.
5. Citation section--The Luhn code of each document cited by the report is given. This information is found on 'C ' lines.
6. Keyword section--Keywords, if any, which were found in the document are listed. The 'K ' lines of an item contain the keywords.

A more detailed description of the format of items in the bibliography can be found in Volume II.


H. A. Bayard
Intelligence and Information
Systems


J. Fleming
Intelligence and Information
Systems

HAB/JF:dmk

A LISTING OF THE FILE BIBTRANSLATORROUTINES

LISTING OF FILE + BIBTRANSLATORROUTINES DATE 11AUG71

I.D.:	BAERJE68GMC	AD 678753	MD 57971	REPORT NO. 68-46	5IM
TITLE:	GRAPH MODELS OF COMPUTATIONS IN COMPUTER SYSTEMS				5T
AUTH.:	BAER JEAN-LOUP E				5AP
PUB.:	UNIVERSITY OF CALIFORNIA LOS ANGELES DEPARTMENT OF				1P
ENGINEERING	DATED: 68.10	PLACE:	CALIFORNIA LOS ANGELES		5P
CITES: ASCHRA67IM- AOKIM-63ACA ANDEDW67MPI BAERJL--LOP					3C
HAERJL68CAE	BERGC-62TGA	BAKEJJ62NMB	BCVEDP68MAC	BARNG---IIC	3C
BUSSB-62PVS	COFFEG67BPP	CHENYC66SPC	CLINCT64MFP	COOPDC66CPG	3C
CRITAJ65GMM	COTTLW65CIF	CURTWA63MCS	DUDERA64DMD	EISNH-62GNA	3C
ESTRG-67MMM	ELMASE64AAG	ELMASE67EDP	ESTRG-63AAC	ESTRG-67SCC	3C
ESTRG-60OCS	FLOYRW67NA-	FULKDP62ECP	GEREWS66HJS	GIFFB-60ASP	3C
GLUCSE65ISD	GOSDJA66EPP	GRAHRL66BCP	HELLJ-61SAM	HELDM-63AB-	3C
HU--TC61PSA	IGNAE-65ABB	JACKJR55CPL	JOHNSM54023	KARPRM60NAG	3C
KELLJE61CPP	KILBMD62RAS	KLEIL-66SPM	KARPRM66PMP	KNOWM-67MOI	3C
KEMEJG63FMC	KUCKDJ--IIS	LAMPBW68SPM	LEHMM-66SPP	LEVYWA65CMC	3C
MARTDF66AAS	MARTDF67EMC	MARTDF67MCS	MARTDF67MCS	MENDMJ66SSR	3C
MARTJJ65DTD	MCKEJL62SPJ	MALCDG59ATR	MARIRB59NMC	MCNAR-59SDL	3C
MURTJC66HPI	MAYBJO64MTS	NIEVJ-64PMI	PARKDF66CCU	PRITAB66GGE	3C
PROSRT60ABM	RAMACV66AGC	RADRJ-67GMP	ROTHMA66SIT	RUSSEC63AAC	3C
RUSSEC--APA	ROY-B-62CCG	SAATTL61EQT	SCHWES64HPP	SENZON65COA	3C
SCHWES61ASP	SCHWJ-66LPC	SHEDGS67PNM	SMITRD67GAS	SCHEAL67ATC	3C
STAUDC67UIP	SCHWJI64GPT	TONGFM65ABU	THORJF67CGP	THORJE63POC	3C
TURNR-63AIV	VAN RS63MCP	WARSS-62TBM	WIESJD64SPS		5C
KEY WD.:	DIRECTED GRAPH MODELS OF COMPUTATIONAL TASKS A PRIORI				1K
SCHEDULING	COMPUTERS	PARALLEL PRCESSING			5K
					5V

I.D.: BARBP-68ARP AD 679237 PLR-002 INTERIM REPORT 5IM
 TITLE: AUTOMATIC REPROGRAMMING WITH THE PILER SYSTEM 5T
 AUTH.: BARBE PENNY 5AP
 AUTH.: PROBE CONSULTANTS, INC. PLACE: ARIZONA PHOENIX 3139 WEST 1P
 CALAVAR ROAD 85023 DATED: 68.11.01 5P

CITES: ALLARW64SE6 CART--62ILT FELDJA66FSC GRAHRM64BCT 3C
 GREEJ-66MEP KRIDL-64FAA MARIT-62CCS NIEVJ-65ASC OLSETM65PTP 3C
 SHAWCJ61J-- STEETB--FVU WILDDU67PAD 5C
 KEY WD.: 5K
 5V

I.D.: BARBP-69MFI AD 693296 MD 60632 PLR003 5IM
 TITLE: MICRO-FORM FORMATS AND INTERPRETERS IN THE PILER SYSTEM 5T
 AUTH.: BARBE PENNY 5AP
 AUTH.: PROBE CONSULTANTS, INC. PLACE: ARIZONA PHOENIX 3139 WEST 1P
 CALAVAR ROAD 85023 DATED: 69.05.01 5P

CITES: 5C
 5V

I.D.: BENNRK68BBU AD 681169 MD 57704 SIG-TR-336 AFOSR 1IM
 69-0072TR 5T
 TITLE: BUILD, A BASE FOR UNIFORM LANGUAGE DEFINITION: A USER'S MANUAL 1T
 FOR COMPUTER LANGUAGE DESIGNERS AND SYSTEMS PROGRAMMERS 5T
 AUTH.: BENNETT RICHARD K 5AP
 AUTH.: SIGNATRON, INC. PLACE: MASSACHUSETTS LEXINGTON 02173 5P
 DATED: 68.06 5P

CITES: ABRAPW66L2P ARDEBW61IOM BASTAL62PLT -BELLT--BSD 3C
 BENNRK64SST BROORA63C-- CHEATE64SDC -DATAP61DIP FELDJA66FSC 3C
 GALLB-67PDA -IBM---PLS IRONET61SDC MCCLRM65TSC METCHH64PCB 3C
 PLASJ-66TSM RICHM-68BRM SCHODV64SCW 5C
 KEY WD.: COMPUTER LANGUAGES PROGRAMMING LANGUAGES COMPILERS 3K
 ASSEMBLERS TRANSLATORS LANGUAGES LANGUAGE DEFINITION 5K
 5V

I.D.: BRANRL67CTJ WP-8120 NPN 218 5IM
 TITLE: COMPARISON OF TWO JOVIAL COMPILERS 5T
 AUTH.: BRANT R L 5AP
 AUTH.: MITRE CORPORATION WASHINGTON D.C. OFFICE PLACE: 5P
 DATED: 67.11.22 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.: BRAZEL68RPL LA-4020 MD 64104 5IM
 TITLE: RDTAN: A PROBLEM-ORIENTED LANGUAGE INPUT PROCESSOR 5T
 AUTH.: BRAZIER EMMETT L JR GRIFFIN JAMES H 5AP
 AUTH.: UNIVERSITY OF CALIFORNIA LOS ALAMOS SCIENTIFIC LABORATORY 5P
 PLACE: NEW MEXICO LOS ALAMOS 87544 DATED: 68.11.27 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.: BUDEFC69PPS AD 859371 MD 60492 RADC-TR-69-265 5IM
 TITLE: PROGRAM PRODUCTION SYSTEM SOFTWARE SUPPORT AND JOVIAL COMPILER 1T
 QUALITY ASSURANCE 5T
 AUTH.: BUDELMAN FREDERICK C ET AL 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: NEW YORK ROME 200 1P
 EAST GARDEN STREET 13440 DATED: 69.08 5P

CITES: 5C
 KEY WD.: SOFTWARE JOVIAL COMPILER INPUT/OUTPUT QUALITY 1K
 ASSURANCE 5K
 5V

I.D.: CALLED69JPD AD 682305 MD 57883 TR-0020 (S9990)-4 3IM
 SAMSO-TR-69 25 5I
 TITLE: J-3, PL/I AND A DATA BASE 5T
 AUTH.: CALLENDER E DAVID RHODUS N WAYNE 5AP
 AUTH.: AEROSPACE CORPORATION PLACE: CALIFORNIA SAN BERNARDINO 5P
 DATED: 69.02.07 5P

CITES: -AFSCF68SPT -----68CEP -IBM--66DAF -IBM----PPG 3C
 -IBM----PRM -IBM--68JCL -----68PPS 5C
 KEY WD.: PL/I JOVIAL J-3 IBM-OS COMPOOL 5K
 5V

I.D.: CERFVG70MRP AD 708770 REPT. 70-43 UCLA-10P14-90 51M
 TITLE: MEASUREMENT OF RECURSIVE PROGRAMS 5T
 AUTH.: CERF V G 5AP
 AUTH.: UNIVERSITY OF CALIFORNIA, LOS ANGELES SCHOOL OF ENGINEERING 1P
 AND APPLIED SCIENCE PLACE: CALIFORNIA LOS ANGELES DATED: 2P
 70.05 5P

CITES: ADDIJW65TM-	AHO-AV68RAP	ANON--66MLA	APPLCT65PMD	3C
ASCHRA69CHM	BAERJ-68GMC	BAUEFL66SSF	BAUMR-64IA-	BEMERW68SIS 3C
BERGC-62TGA	BINGH-67DEO	BROORA67TPR	BROORA67CFA	BROORA67EC- 3C
BROORA67SPD	BROWWS65OED	BURKWM65MSS	CALIP-67SPE	CHARBA68UST 3C
CHEATE64AC-	CHEATE64SDC	CLARER67ASS	COHEJ-66NOG	COHEJ-67NAP 3C
COHEJ-67LCW	COOPDC66CPG	COOPDC66ECC	CROCS-66IFI	DAVIM-66RFI 3C
UONOJJ67FSS	ESTRG-67SCC	ESTRG-67MMM	FELDJ-62CSG	FELDJA66FSC 3C
FELDJ-68TWS	FEREEN68SOP	FERGD-66EMP	FERGHE63DSS	FISHDA67PAM 3C
FLOYR-64BCS	FLOYR-67NA-	FOSTJM68SIP	FREIIF68DBP	GILBR-66SAL 3C
GOLDDG66UTD	GOODCD63GMA	GORNS-66SLM	GOSDJA62SCC	GOTLCC67AFF 3C
GRIFTV65REC	GRIFTV68TBA	HALPMI64XMM	HARAF-65SMI	HARTJ-67MRC 3C
HARTJ-65CCT	HERMDJ64UCE	HILLJR68SBP	HOLTAW63MAI	HOPCJE67NSA 3C
HOPKD-68MUE	INGEPZ66SOT	IRONET61SDC	IVERKE64FPL	JOHAP-67NP- 3C
KARPRM60NAG	KARUAD69TAM	KNUTDE68AP-	KNUTDE67CPL	KNUTDE65TLL 3C
KOSTR-69LSC	KUNOS-65PAP	KUNOS-66APA	KUNOS-66PA-	KUNOS-62MSA 3C
LEWIPM68SDT	LIU-CL67DIT	LYNCWC63ABN	MANDRL68TCD	MARIRB59NMC 3C
MARTD-67EMC	MARTD-67MCS	MARTD-67MCS	MARTJJ65DTD	POTAH-69DCD 3C
PRATTW66PBS	PRATTW65SDT	PRESL-68SSE	PROSRT60ABM	RAMACV65DMA 3C
RANDB-64A6I	RESNM-68ISD	REYNJC68ICP	ROGEH-67TRF	ROHLJS68NBF 3C
ROTAB-61CAI	RUBERJ68QMP	RUBIM-67MSS	RUSSEC69APA	ROSES-64C8S 3C
SCHODV64MIS	SCHODV67SCS	SCHNFW64MSD	SCHNVB67SCP	SCHUFD67HMD 3C
-SDS--67FIO	-SDS--68BPM	SHERPM66FCP	STATN-64MEC	STEEJB66FLD 3C
STEVD68SEC	TIXIV-67RFR	TOSHW-65ST-	TRACM-69PEO	TROURG67CS- 3C
TYRRA-69IM7	UNGESH63GPC	WALTKG66COO	WARSS-61SDG	WEISC-67L1P 3C
WELCJT65CAU	WELCJT66MAC	WHITP-64REC	WOLMBL65STP	YOUNDH67RPC 5C
KEY WD.: META COMPILERS	PROGRAM PERFORMANCE MEASURES	COMPUTER		1K
MEASUREMENT METHODS	SYNTAX RECOGNIZERS	TRANSLATOR WRITING SYSTEMS		5K
COMPUTATION MODELS				5K
				5V

I.D.: CHEATE--RMS AD 683362 MD 58235 FIRST SEMI-ANNUAL TECHNICAL 1IM
 REPORT 5I
 TITLE: RESEARCH IN MACHINE-INDEPENDENT SOFTWARE PROGRAMMING 5T
 AUTH.: CHEATHAM T E JR CHRISTENSEN CARLOS 5AP
 AUTH.: MASSACHUSETTS COMPUTER ASSOCIATES, INC. PLACE: 2P
 MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01680 DATED: XX 5P

CITES: CHEATE63ICP CHEATE64SDC CHEATE66TCC CHEATE66IDF 3C
 CHEATE66IDF CHEATE68BEE CHRIC-64APL CHRIC-65ESM CHRIC-66IAL 3C
 CHRIC-67RMN CHRIC-68EMD FLOYRW67NA- HOLTAW68FRI JORRP-68GBE 3C
 LEONGF64EOS LEONGF66MEM SATTK-62SAO SHAPRM63DCG SHAPRM64GC- 3C
 SHAPRM68NAN WARSS-61SDG WARSS-63SRD 5C
 5V

I.D.: CHEATE68BEE N70-15399 MD 64052 5IM
 TITLE: ON THE BASIS FOR ELF--AN EXTENSIBLE LANGUAGE FACILITY 5T
 AUTH.: CHEATHAM T E JR 5AP
 AUTH.: MASSACHUSETTS COMPUTER ASSOCIATES, INC. PLACE: 2P
 MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01880 DATED: 68.06. 0P
 13 5P

CITES: CHEATE66IDF DIJKEW68LE- FISCAE BBL FLOYRV63SAO 3C
 GARWJV67GL- GARWJV--GPL GALLBA67PDA LEONGF64EOS LANDPJ66N7P 3C
 PERLAJ67SAS PERLAJ--PC- SHAPRM64GTC SHAPRM63DCG VAN A-68DPA 3C
 WIRTN-66EGA 5C
 KEY WD.: 5K
 5V

I.D.: CHEATE69RMS AD 860066 MD 60729 SECOND SEMI-ANNUAL 1IM
 REPORT 5I
 TITLE: RESEARCH IN MACHINE-INDEPENDENT SOFTWARE PROGRAMMING 5T
 AUTH.: CHEATHAM T E JR CHRISTENSEN CARLOS HOLT ANATOL W 5AP
 AUTH.: MASSACHUSETTS COMPUTER ASSOCIATES, INC. PLACE: 2P
 MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01880 DATED: 69 5P

CITES: HENDD-69DDS JORRP-69FDB JORRP-69FDB JORRP-69FDB 3C
 LEDEKS69CR- WOLFMS69UVC 5C
 KEY WD.: 5K
 5V

I.D.: CHIKGB67OMR AD 697616 FTD-MT-24-411-68 5IM
 TITLE: ONE METHOD OF REPRESENTING ALGORITHMS OF MACHINE 1T
 TRANSLATION 5T
 AUTH.: CHIKOIDZE G B 5AP
 TITLE: AN GRUZSSR. SOOBASHCHENIYA DATED: 67 TRANSLATED: 2P
 68.12.27 VOL.: 48.02 PP.: 0293-0298 5P

CITES: CHIKGB66AMT 5C
 KEY WD.: MACHINE TRANSLATION ALGORITHMIC LANGUAGE 5K
 5V

I.D.: CULIK-67WTC AD 683105 FTD-HT-23-613-66 51M
 TITLE: WELL TRANSLATABLE GRAMMARS AND ALGOL-LIKE LANGUAGES 3T
 TRANSLATED FROM RUSSIAN 5T
 AUTH.: CULIK K 5AP
 TITLE: NAUCHNO-TEKHNICHESKAYA INFORMATSIYA SERIYA 2 INFORMATSIONNYYE 1P
 PROTSESSY I SISTEMY VOL.: 03 PP.: 0021-0023 5P

CITES: 5C
 5V

I.D.: DELLGT65UMT 51M
 TITLE: USE OF MACROS IN TRANSLATION OF SYMBOLIC ASSEMBLY LANGUAGE OF 1T
 ONE COMPUTER TO ANOTHER 5T
 AUTH.: DELLERT GEORGE T JR 5AP
 TITLE: COMMUNICATIONS OF THE ACM VOL.: 8, NO. 12 PP.: 2P
 0742-0748 DATED: 65.12 5P

CITES: BRAUJH63SI7 STEVDF63EF7 MAGNRA64MP- BAKECL63ACM 5C
 MYLAWC65CSP MAGNRA65EUM 5C
 KEY WD.: 5K
 5V

I.D.: DILLR-67RSE MD 64076 TM-3567/000/00 (DRAFT) 51M
 TITLE: RESULTS OF THE SURVEY OF EXISTING AND AVAILABLE TEST AND 1T
 EVALUATION METHODS FOR NONFUNCTIONAL COMPUTER PROGRAMS 5T
 AUTH.: DILLER R FLEISHMAR T 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA 1P
 MONICA 2500 COLORADO AVE. DATED: 67.07.07 5P

CITES: +ACM---JA- +ACM---CA- SIEGM---IRB CALIP-67SPE 3C
 +CA----- +IPJ----- +CR----- +AFIP---CP- +IFIP---CP- 3C
 GOSDJA62SCC -IBM---SJ- GINZMG--NTR +CAA----- HILLJR66S8P 3C
 JOSLE066VBC STATN-64MEC IHREFC--CPP IHREFC--UCE TOTAJB67RPP 3C
 HAMMC-66CES +ACM---CP- JOSLE065ABK APPLCT65PMC +DATAM----- 3C
 OPLEA-64MSC PATRRL64MP- HEADRV64TRS HEADRV64TRS +CJ----- 3C
 +CB----- -CDPSC62P-- PATRRL--PLS WILLRC--CLS MOORWC----- 3C
 ABRAPH63QMI DOPPO-62TPU 5C
 KEY WD.: 5K
 5V

I.D.: FREDDS65AML 51M
 TITLE: ACROSS MACHINE LINES IN COBOL 5T
 AUTH.: FREDERICKS D S WARBURTON C R 5AP
 TITLE: COMMUNICATIONS OF THE ACM VOL.: 8, NO. 12 PP.: 2P
 0731-0735 DATED: 65.12 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.: GAINRS65TML 5IM
 TITLE: TRANSLATION OF MACHINE LANGUAGE PROGRAMS 5T
 AUTH.: GAINES R STOCKTON 5AP
 TITLE: COMMUNICATIONS OF THE ACM VOL.: 8, NO. 12 PP.: 2P
 0736-0741 DATED: 65.12 5P

CITES: GUNNJH62PPI OPLEA-62ATP GRAHS-65SCC 5C
 KEY WD.: 5K
 5V

I.D.: GARDRI68DMC AD 681851 MD 59170 68-65 UCLA-10814-65 5IM
 TITLE: DEVELOPMENT OF A METACOMPILER CONTAINING LIST-PROCESSING 1T
 CAPABILITIES 5T
 AUTH.: GARDNER ROBERT I JR 5AP
 AUTH.: UNIVERSITY OF CALIFORNIA DEPARTMENT OF ENGINEERING 5P
 PLACE: CALIFORNIA LOS ANGELES 90024 DATED: 68.12 5P

CITES: 5C
 KEY WD.: METACOMPILER LIST-PROCESSING SYSTEM DIRECTED GRAPH 1K
 STRUCTURES LANGUAGE TRANSLATORS COMPILERS 5K
 5V

I.D.: GILBP-66APT AD 488851 MD 30715 RADC-TR-66-54 5IM
 TITLE: AUTOMATIC PROGRAMMING TECHNIQUES 5T
 AUTH.: GILBERT P GUNN D M SCHAGER C L 5AP
 AUTH.: TELEDYNE SYSTEMS CORP PLACE: CALIFORNIA HAWTHORNE 12525 1P
 SO. DAPHNE AVE DATED: 66.07 5P

CITES: CHOMN-59CFP GILB--62APT GILB--63APT GILBP---SAL 3C
 GINSS-62TFL GLENAE60SMC IRONET61SCA NAURP-60RAL 5C
 KEY WD.: COMPILERS PROGRAMMING LANGUAGE FORTRAN ALGOL JOVIAL 3K
 AUTOMATIC PROGRAMMING 5K
 5V

I.D.: GILBP-67APT AD 811144 RADC-TR-66-665, VOLUME I 5IM
 TITLE: AUTOMATIC PROGRAMMING TECHNIQUES 5T
 AUTH.: GILBERT PHILIP GUNN DON M SCHAGER CRAIG L TESTERMAN W 5AP
 AUTH.: TELEDYNE SYSTEMS CO. PLACE: CALIFORNIA HAWTHORNE 12525 1P
 SOUTH DAPHNE AVE. DATED: 67.01 5P

CITES: 5C
 KEY WD.: COMPILERS PROGRAMMING LANGUAGES FORTRAN, JOVIAL, ALGOL 3K
 AUTOMATIC PROGRAMMING 5K
 5V

I.D.: GILBP-67APT AD 811145 RADC-TR-66-665, VOLUME II 5IM
 TITLE: AUTOMATIC PROGRAMMING TECHNIQUES 5T
 AUTH.: GILBERT PHILIP GUNN DON M SCHAGER CRAIG L TESTERMAN W 5AP
 AUTH.: TELEDYNE SYSTEMS CO. PLACE: CALIFORNIA HAWTHORNE 12525 1P
 SOUTH DAPHNE AVE. DATED: 67.01 5P

CITES: 5C
 KEY WD.: COMPILERS PROGRAMMING LANGUAGES FORTRAN, JOVIAL, ALGOL 3K
 AUTOMATIC PROGRAMMING 5K
 5V

I.D.: GILBP-67CGU AD 658029 MD 50702 RADC-TR-67-456 5IM
 TITLE: COMPILER GENERATION USING FORMAL SPECIFICATION OF PROCEDURE- 0T
 ORIENTED AND MACHINE LANGUAGES 5T
 AUTH.: GILBERT PHILIP MCLELLAN WILLIAM G 5AP
 AUTH.: ROME AIR DEVELOPMENT CENTER (EMIRD) PLACE: NEW YORK 1P
 GRIFFISS AIR FORCE BASE 13440 DATED: 67.08 5P

CITES: CANTDG62APB CHOMN-57SS- CHOMN-59CFP DIFOAC63SRS 3C
 GILB--62APT GILB--66APT GILB--66APT GILBP-66SAL GINSS-62TFL 3C
 IRONET61SCA NAURP-60RAL 5C
 KEY WD.: PROGRAMMING LANGUAGES COMPILERS FORTRAN JOVIAL 3K
 ALGOL 5K
 5V

I.D.: GILBP-67CGU AD 658029 RADC-TR-67-454 5IM
 TITLE: COMPILER GENERATION USING FORMAL SPECIFICATION OF PROCEDURE- 0T
 ORIENTED AND MACHINE LANGUAGES 5T
 AUTH.: GILBERT PHILIP MCLELLAN WILLIAM G 5AP
 AUTH.: ROME AIR DEVELOPMENT CENTER (EMIRD) PLACE: NEW YORK 1P
 GRIFFISS AIR FORCE BASE 13440 DATED: 67.08 5P

CITES: CHOMN-57SS- CHOMN-59CFP GINSS-62TFL NAURP-60RAL 3C
 IRONET61SCA CANTDG62APB DIFOAC63SRS GILBP-66SAL GILB----APT 3C
 GILB----APT GILB----APT 5C
 KEY WD.: PROGRAMMING LANGUAGES COMPILERS FORTRAN JOVIAL 3K
 ALGOL 5K
 5V

I.D.: GINSS-69ALF AD 702812 MD 61981 AFCRL-69-0326
 TITLE: ALGORITHMIC LANGUAGES FINAL REPORT
 AUTH.: GINSBURG SEYMOUR
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA
 MONICA 90406 DATED: 69.07.01.

SIM
 5T
 5AP
 1P
 5P

CITES: CHANWJ69AFD DONEJE67TAS GINSS-67ORL GINSS-67NPL
 GINSS-67CSC GINSS-67P-- GINSS-67OEE GINSS-68DL- GINSS-68TBA
 GINSS-68AFL GINSS-68MMT GINSS-68SFL GINSS-69PA- GINSS-69IAU
 GREIS-67IAO GRIES-67NUP GREIS-68SCG GREIS-68CAO GREIS-69MA-
 GREIS-69CFA HIBBTN66GCD HIBBTN67ECG MAGEG-68WPA ROSEGF68AFP
 ROSEGF67CWP ULLIJ-66PAP
 KEY WD.: AUTOMATA FORMAL LANGUAGES AFL THEORY

3C
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 5K
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I.D.: GOSDJ-68AIC MTP-312
 TITLE: ACHIEVING INTER-ADP CENTER COMPATIBILITY
 AUTH.: GOSDEN J BRAMSON S FRY J MAHLE S STERNICK H
 AUTH.: MITRE CORPORATION WASHINGTON OPERATIONS PLACE:
 DATED: 68.05

SIM
 5T
 5AP
 5P
 5P

CITES: FRANEW66DMS SABLJ-66RCA +ACM--63A6R -USASI66F--
 -USASI66BF- -USASI--CIB -CSC--67GC- -CSC----GS- -CSC----ECT
 +DATAM67CLM -IBM----PLS -USASI67SCI +ACM--67MTL -AUERC66RCA
 -AUERC66DM- -AUERC67DSS -NAA--67DLN -USAF-67SCP -WESCO67CPT
 KEY WD.:

3C
 3C
 3C
 5C
 5K
 5V

I.D.: GRAHML65ALR
 TITLE: ASSEMBLY LANGUAGE FOR REPROGRAMMING
 AUTH.: GRAHAM MARVIN LOWELL INGERMAN PETER ZILAHY
 TITLE: COMMUNICATIONS OF THE ACM VOL.: 8, NO. 12 PP.:
 0769-0773 DATED: 65.12

SIM
 5T
 5AP
 2P
 5P

CITES: HALPMI64XMW FERGDE--ML- INGPZ64PTP -IBM----RMI
 -UNIVA--CCM
 KEY WD.:

3C
 5C
 5K
 5V

I.D.: HAHNW-70STC M70-43 5IM
 TITLE: SOFTWARE TRANSFER COST ESTIMATION TECHNIQUE 5T
 AUTH.: HAHN W STONE J JR 5AP
 AUTH.: MITRE CORPORATION WASHINGTON OPERATIONS PLACE: 5P
 DATED: 70.07 5P

CITES: -ESD--66AFA -DCA--690CD BRANDH63MSD -ARMY-69CAS 3C
 -DCA--70WBC DELAWA66PCC FARRL-64FAC KAHNPG69PC- LICHMA69WSE 3C
 NELSEA67MHE -OASD-68CAU ADAMD67PCC BAKEDM66ECC BARLDA68SOS 3C
 BEMERW69PT- BRANRL67CAJ BRIGPL69PC- BUDDAE67AAS CARTWJ66PFC 3C
 DRUMKR66PAD FARIM-66TC- FIFEDW67AEC FLEIT-66CRA FLURWR65NDB 3C
 FREDD65AML FRITWB67CCW FRY-JP68UGS GAINRS65TML GALIMP67ERS 3C
 GILLGW69MCP GOSDJA68ATA GOSDJA68SC- GUTTN-68PCP HALPMI65MII 3C
 -ARMY-69HAR HAUWC68TCP HIRSP-69WIB -ARMY-69IAD JANNTJ61CPC 3C
 JONEMV69CGD JONEMV65EMD JONEMV65HEI KEDEV-68CCE LABOV-66DEE 3C
 LABOV-64ECP LAPALJ67TRM MANUB-64SCC MEALGH--PTS NELSEA65RIM 3C
 PATRRL69IQ- PORTJD67ACE RAICE-67PAC RANFAM68ADC RANFAM68CFR 3C
 RATYMV67AFC RUBERJ68CEP RUBIJ-66CAS SANDCW66AWC TUCKSG65ELS 3C
 WEINGF66DEC WEINGF65RMC WILLDA67CLM 5C
 KEY WD.: 5K
 5V

I.D.: HAUWC68TCP MD 56988 TM-3676/007/01 5IM
 TITLE: TRANSFERABILITY OF COMPUTER PROGRAMS AT COMMAND CENTERS 5T
 AUTH.: HAU EISEN W C MATHUR R N ILGER H J LABOLLE V 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA 1P
 MONICA 2500 COLORADO AVE 90406 DATED: 68.01.16 5P

CITES: BAERRE67RTA BEAUAA67RT4 BENSSG65CPA BORED-67T-- 3C
 BRUHSW66WMC BUDDAE66MES BUDDAE66MES BUDDAE66MES BUDDAE67AAS 3C
 CHRILS66ITJ DRUTA-67WAS ENGLJE67TS4 ERICWJ67ACC FLEIT-67TAP 3C
 FLEIT-67RSE GAINRS65TML HAUWC68RNC -IBM----ISC IRBYLA67RCT 3C
 KLEIPE64RSB KLINJ-67DPS NEILG-67CMP NEILG-67SDR OLSETM65PTP 3C
 OPPEDK66M-- -SDC--64DMC SEARLV67SEG SEARLV66SEN SEARLV66SMD 3C
 SHAWCJ66CPC -USAF-64CMD -USAF---CME -USAF-64DE- -USAF-64MCD 3C
 -USAF---PTS -USAF-66SEM -USAF---SMP -USAF-65SPM -USAF-64SPD 3C
 WEINGF65RMC 5C
 KEY WD.: 5K
 5V

I.D.: HILLRH68SET 5IM
 TITLE: SIMULATION, EMULATION, & TRANSLATION 5T
 AUTH.: HILL RICHARD H 5AP
 TITLE: SIMULATION VOL.: PP.: 0081-0084 DATED: 68.02 5P

CITES: 5C
 KEY WD.: SOURCE COMPUTER TARGET COMPUTER HOST COMPUTER OBJECT 1K
 COMPUTER SOURCE LANGUAGE OBJECT LANGUAGE MACHINE CODE MACHINE- 0K
 LEVEL LANGUAGE HIGHER-LEVEL LANGUAGE 5K
 5V

I.D.: HOLTAW70ECA AD 704796 MD 63959 THIRD SEMI-ANNUAL TECHNICAL 1IM
 REPORT PART II (COVERING TASK AREA II) 5I
 TITLE: EVENTS AND CONDITIONS AN APPROACH TO THE DESCRIPTION AND 1T
 ANALYSIS OF DYNAMIC SYSTEMS 5T
 AUTH.: HOLT ANATOL W COMMONER FREDERIC 5AP
 AUTH.: MASSACHUSETTS COMPUTER ASSOCIATES, INC. PLACE: 2P
 MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01880 DATED: 70. 0P
 04 5P

CITES: HOLTAW68FRI HOLTAW65MMM PATISS69MCD PATISS69MDA 3C
 PATISS69NMA PATISS69MIC PATISS--CRD PETRCA--CA- SHAPRM69HFS 3C
 SHAPRM69RA- 5C
 KEY WD.: 5K
 5V

I.D.: IRBYLA67RCT MD 64067 TM-WD-488/000/00 5IM
 TITLE: RESULTS OF CONVERSION OF TWO OPERATIONAL PROGRAMS FROM J3 ON 1T
 THE CDC 1604 TO J5.2 ON THE IBM 360 5T
 AUTH.: IRBY LELIA A 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: VIRGINIA FALLS 1P
 CHURCH 22041 DATED: 67.12.18 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.: JORRP-69FDB AD 860063 MD 60718 5IM
 TITLE: FORMAL DEFINITION OF BASEL PART 3: INTERPRETER 5T
 AUTH.: JORRAND PHILIPPE 5AP
 AUTH.: MASSACHUSETTS COMPUTER ASSOCIATES, INC. PLACE: 2P
 MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01880 DATED: 69. 0P
 08.15 5P

CITES: HAMMM--FDB JORRP---FDB 5C
 KEY WD.: 5K
 5V

I.D.: KINGJC69PV- AD 699248 AFOSR-70-0039TR 5IM
 TITLE: PROGRAM VERIFIER 5T
 AUTH.: KING JAMES C 5AP
 AUTH.: CARNEGIE MELLON UNIVERSITY DEPARTMENT OF COMPUTER SCIENCE 5P
 PLACE: PENNSYLVANIA PITTSBURGH 15213 DATED: 69.09 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.: KISEBR67SCT AD 684013 FTD-HT-23-506-68 5IM
 TITLE: STANDARDIZATION OF COMPUTER TECHNOLOGY FACILITIES TRANSLATED 1T
 FROM RUSSIAN 5T
 AUTH.: KISELEV B R 5AP
 TITLE: STANDARTY I KACHESTVO DATED: 67 VOL.: 10 PP.: 2P
 0028-0031 5P

CITES: 5C
 5V

I.D.: KLEIPE64RSB MD 64066 TM-WD-423/000/00 5IM
 TITLE: RESULTS OF A STUDY OF THE BIDIRECTIONAL TRANSFER OF COMPUTER 1T
 PROGRAMS BETWEEN THE IBM 7090 AND THE CDC 1604A 5T
 AUTH.: KLEIN P E 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA 1P
 MONICA 2500 COLORADO AVE DATED: 64.08.12 5P

CITES: 5C
 KEY WD.: 5K
 5V

I.D.:	KNUTDE70EFS	AD 711329	MEMO AIM-126	REPORT NO. CS 169	5IM
TITLE:	EXAMPLES OF FORMAL SEMANTICS				5T
AUTH.:	KNUTH DONALD E				5AP
AUTH.:	STANFORD UNIVERSITY	COMPUTER SCIENCE DEPARTMENT	ARTIFICIAL		1P
INTELLIGENCE PROJECT	PLACE:	CALIFORNIA STANFORD	DATED:		2P
70.07					5P

CITES:		5C
KEY WD.:	LAMBDA EXPRESSIONS	SYNTHESIZED ATTRIBUTES
		INHERITED
ATTRIBUTES	TURINGOL	TL/I
	INFORMATION STRUCTURES	
		5K
		5V

I.D.:	KROHKB69DMM	AD 697826	MD 62723	AFOSR 69-2993TR	5IM
TITLE:	DEVELOPMENT OF A MACHINE-INDEPENDENT, MULTI-LEVEL, RECURSIVE				1T
MACRO SUBSTITUTION LANGUAGE FOR THE SPECIFICATION OF REAL FILE					1T
STRUCTURES AND THEIR OPERATIONAL ENVIRONMENTS					5T
AUTH.:	KROHN KENNETH B				5AP
AUTH.:	COMPUTER SYMBOLIC, INC.	PLACE:	DISTRICT OF COLUMBIA		1P
WASHINGTON 920 15TH STREET, N.W. 20005	DATED:		69.11.20		5P

CITES:		5C
KEY WD.:	MACHINE LANGUAGE	COMPILER
	RECURSIVE SYSTEMS	FILE
ORGANIZATION	COMPUTER SYSTEMS	SOFTWARE
PROGRAMMING	ASSEMBLY LANGUAGE	
		5K
		5V

I.D.:	LAMPBW66RMC	AD 707366	DOCUMENT NO. R-13	5IM
TITLE:	REFERENCE MANUAL: COMPILER PACKAGE			5T
AUTH.:	LAMPSON BUTLER W			5AP
AUTH.:	UNIVERSITY OF CALIFORNIA	PLACE:	CALIFORNIA BERKELEY	5P
DATED:	66.03.18			5P

CITES:		5C
KEY WD.:		5K
		5V

I.D.: OSWAH-67IPT AD 812819 MD 48545 RADC-TR-67-104 5IM
 TITLE: IMPLEMENTATION OF PROGRAM TRANSLATION 5T
 AUTH.: OSWALD HENRY DYKAAR R R VOLLERS J OSWALK J KAUFMAN P 1AP
 J 5AP
 AUTH.: CELESTRON ASSOCIATES, INC. PLACE: NEW YORK VALHALLA 4 1P
 BROADWAY 10595 DATED: 67.03 5P

CITES: 5C
 KEY WD.: DIGITAL COMPUTER AUTOMATICALLY TRANSLATE MACHINE 1K
 LANGUAGE COMPUTER PROGRAM 5K
 5V

I.D.: PAULMC68TDS AD 683 784 MD 59903 SCIENTIFIC REPORT NO. 1IM
 6 5T
 TITLE: TRANSLATION DESCRIPTION SYSTEM FOR COMPUTER LANGUAGES 5T
 AUTH.: PAULL MARVIN C 5AP
 AUTH.: RCA LABORATORIES PLACE: NEW JERSEY PRINCETON 08540 5P
 DATED: 68.12 5P

CITES: AHO-AV--SDT INGEPZ66SOT PAULMC67BDS 5C
 KEY WD.: LANGUAGE DESCRIPTION LANGUAGE PROCESSING COMPUTER 1K
 LINGUISTICS TRANSLATION SYSTEMS PROGRAMMING LANGUAGES SYNTAX 3K
 SEMANTICS CONTEXT-FREE GRAMMARS REPRESENTATIONS 5K
 5V

I.D.: PERSMH65JMP AD 620611 MD 15434 TM-555/002/03 5IM
 TITLE: JOVIAL MANUAL, PART 2 JOVIAL (J3) GRAMMAR AND LEXICON 5T
 AUTH.: PERSTEIN MILLARD H (EARLIER VERSIONS BY C. J. SHAW AND M. H. 1AP
 PERSTEIN)
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA 5P
 MONICA 2500 COLORADO AVE. DATED: 65.09.01

CITES: 5C
 5V

I.D.: PERSMH65JMP AD 623861 MD 15434 TM-555/002/04 5IM
 TITLE: JOVIAL MANUAL, PART 2 JOVIAL (J3) GRAMMAR AND LEXICON 5T
 AUTH.: PERSTEIN MILLARD H (EARLIER VERSIONS BY C. J. SHAW AND M. H. 1AP
 PERSTEIN) 5AP
 AUTH.: SYSTEM DEVELOPMENT CORPORATION PLACE: CALIFORNIA SANTA 1P
 MONICA 2500 COLORADO AVE. DATED: 65.10.20 5P

CITES: 5C
 5V

I.D.:	PERSMH66GLB	AD 635473	MD 45082	TM-555/005/00	5IM
TITLE:	GRAMMAR AND LEXICON FOR BASIC JOVIAL				5T
AUTH.:	PERSTEIN M H				5AP
AUTH.:	SYSTEM DEVELOPMENT CORPORATION		PLACE:	CALIFORNIA SANTA	1P
MONICA	DATED: 66.05.10				5P

CITES:	5C
	5V

I.D.:	PERSMH68STD	AD 666370	MD 54054	SP-2916/000/01	5IM
TITLE:	SOME TECHNIQUES FOR DESCRIBING PROGRAMMING LANGUAGES				5T
AUTH.:	PERSTEIN MILLARD H				5AP
AUTH.:	SYSTEM DEVELOPMENT CORPORATION		PLACE:	CALIFORNIA SANTA	1P
MONICA	PP.: 0001-0028				5P

CITES:	ABRAPW66FSD	BERKEC67CE-	IVERKE64MSS	NAURP-60RAL	3C
	PERSMH66CSD	PERSMH66JGL	PERSMH66NSD	SAMMJE61DC6	3C
	-USASI67PUS	-USGPO61C1R			5C
					5V

I.D.:	PLASJE66TSM	AD 637956	MD 44176	CA-6607-1512	3IM
AFCRL-66-516					5I
TITLE:	TRANSEN SYSTEM ON THE M460 COMPUTER				5T
AUTH.:	PLASKOW JONATHAN E		SCHUMAN STEPHEN A		5AP
AUTH.:	MASSACHUSETTS COMPUTER ASSOCIATES, INC.		PLACE:		2P
MASSACHUSETTS WAKEFIELD LAKESIDE OFFICE PARK 01880	DATED:				2P
66.07.15					5P

CITES:	BEARD-66GPS	BUMGLL--ORC	CHEATE65NCT	CHEATE65TTG	3C
	CHEATE64SC-	CHRIC-65ESM	EVANA-50A6C	EVANA-65SAP	3C
	FLOYRW61DLS	FLOYRW63SAO	LIETMP64MSC	LONDRL64CPD	3C
	MITCRW66ILN	SHAPR-64GTC	STRAC-65GPM	TAYL--61BBA	3C
	-COMPA66ST-	-COMPA66TI-			5C
					5V

I.D.: PRESL-68SSE AD 679592 68-51 UCLA-10P14-52 51M
 TITLE: STRUCTURE, SPECIFICATION, AND EVALUATION OF TRANSLATORS AND 1T
 TRANSLATOR WRITING SYSTEMS 5T
 AUTH.: PRESSER LEON 5AP
 PUB.: UNIVERSITY OF CALIFORNIA LOS ANGELES DEPARTMENT OF 1P
 ENGINEERING PLACE: CALIFORNIA LOS ANGELES 90024 DATED* 2P
 68.10 5P

CITES: BAERJ-68GMC BOOKE-60USB BOVEDP68MAC BROORA60APP 3C
 BROORA60SPK BROORA61DMA BROORA62GTP BURKWH65UPL CARDAF68POL 3C
 CERFV-68MP- CHEATE64AC- CHEATE66TCC CHOMN-63FPG -CCCIT65CNN 3C
 -CCCIT65CNN DAVIRA66CCS DEANAL64SRA ESTRG-67SCC ESTRG-68MDD 3C
 FELDJA64FSC FELDJA66FSC FELDJ-68TWS FLOYRW61DLS FLOYRW63SAO 3C
 FLOYRW64BCS GARWJV64GLC GINSS-66MTC GINSS-66DCF GINSS-67SAC 3C
 GORNS-61SBT GRAHRM64BCT GRANEE66ECO GREEJH63UL- GREISA64FPS 3C
 HALPMI65MIT HALSMH62MCP HARTPH67HWS HAVEJP63PLS HUNTEC66MS- 3C
 -IBM--66PLM INGEZ66ST- IRONET61SDC IRONET61SUS ITURR-66TAU 3C
 KNUTDE65TLL LAWSHW68PIS MANDR-66MDA MANDR-68ICW MARIMA68IFP 3C
 MARTDF66AAS MCCAJ-62L1P MCCLRM65TSD MCKEWM66ACL METCH-64PCB 3C
 MORRCW38FTS NORTR64FSL OPLEA-64MSC OPPEDK66MLS PRESL-67CWS 3C
 ROSES-64CBS RUSSEC68APA SCHML-63ISM SCHOV-63SDS SCHOV-64MIS 3C
 SCHNFW64MSD SHAWA-66LNC SHAWCJ66SOE SIBLRA61SS- SQUIBE65RSC 3C
 SQUIBE66LAP STEETB66FLD TOLLJ-67FE- TURNR-63AIV WARSS-61SDG 3C
 WIRTN-66EGA ZEMAH-66SPL 5C
 KEY WD.: TRANSLATORS TRANSLATOR WRITING SYSTEMS TRANSLATOR 1K
 SPECIFICATION TRANSLATOR EVALUATION TRANSLATOR MEASUREMENT 3K
 COMPILERS INTERPRETERS META COMPILERS PRECEDENCE GRAMMARS 3K
 PRECEDENCE LANGUAGES 5K
 5V

I.D.: RUBERJ68CEP AD 669096 MD 55002 ESD-TR-68-150 LOGICON 11M
 REPORT NO. CS-6813-R0106 5I
 TITLE: COMPARATIVE EVALUATION OF PL/I 5T
 AUTH.: RUBEY RAYMOND J ET AL 5AP
 AUTH.: LOGICON, INCORPORATED PLACE: CALIFORNIA SAN PEDRO 1P
 90731 DATED: 68.04 5P

CITES: 5C
 KEY WD.: PL/I EVALUATION PROGRAMMING LANGUAGE EVALUATION 3K
 PROGRAMMING LANGUAGE COMPARISON FORTRAN : PL/I COMPARISON JOVIAL : 1K
 PL/I COMPARISON COBOL : PL/I COMPARISON BENCHMARK COMPUTER 1K
 PROGRAMS 5K
 5V

I.D.:	RZEPWE69JSS	AD 852934	MD 59441	RADC-TR-69-106	5IM
TITLE:	JOVIAL SORT AND SEARCH ROUTINES FOR THE DM-1 SYSTEM				5T
AUTH.:	RZEPKA WILLIAM E				5AP
AUTH.:	ROME AIR DEVELOPMENT CENTER (EMIIH)		PLACE:	NEW YORK	1P
GRIFFISS AIR FORCE BASE 13440	DATED:		69.05		5P
CITES: GOTLCC63SC- -SDC--66JTM -UNIVA65RJL					5C
KEY WD.: PROGRAMMING (COMPUTER) SORTING SEARCHING					5K
					5V

I.D.:	SHAPKM69RA-	AD 697026	CA-6908-2331	RADC TR-69-313,	1IM
VOL. II					5I
TITLE:	REPRESENTATION OF ALGORITHMS				5T
AUTH.:	SHAPIRO ROBERT M SAINT HARRY				5AP
AUTH.:	APPLIED DATA RESEARCH, INC. CORPORATE RESEARCH CENTER				5P
PLACE:	NEW YORK NEW YORK 450 SEVENTH AVE. 10001		DATED:	69.09	5P
CITES:					5C
					5V

I.D.:	SHAWCJ60JMP	MD 15433	TM555	PART 1	5IM
TITLE:	JOVIAL MANUAL: PART 1 COMPUTERS, PROGRAMMING LANGUAGES AND JOVIAL				1T
AUTH.:	SHAW C J				5T
AUTH.:	SYSTEM DEVELOPMENT CORPORATION		PLACE:	CALIFORNIA SANTA MONICA 2500 COLORADO AVE.	5AP
DATED:		60.12.20			1P
					5P
CITES:					5C
					5V

I.D.:	SHAWCJ61BJP	MD 15435	FM-5477		5IM
TITLE:	BASIC JOVIAL PRIMER				5T
AUTH.:	SHAW C J				5AP
AUTH.:	SYSTEM DEVELOPMENT CORPORATION		PLACE:	CALIFORNIA SANTA MONICA 2500 COLORADO AVE.	1P
DATED:		61.05.05			5P
CITES:					5C
					5V

I.D.: SRINCV67FDC AD 662899 SCIENTIFIC REPORT NO. 2 AFCRL-67- 01M
0588 5I
TITLE: FORMAL DEFINITION OF CDL1, A COMPUTER DESCRIPTION LANGUAGE 5T
AUTH.: SRINIVASAN CHITTOOR V 5AP
AUTH.: RADIO CORPORATION OF AMERICA RCA LABORATORIES PLACE: NEW 1P
JERSEY PRINCETON 08540 DATED: 67.10 5P

CITES: 5C
KEY WD.: DESIGN AID SYSTEMS COMPUTER DESCRIPTION LANGUAGE 3K
DOCUMENTATION SIMULATION AUTOMATIC SYNTHESIS 5K
5V

I.D.: SRINCV69CCD AD 693555 SCIENTIFIC REPORT NO. 3 AFCRL-69- 01M
0322 5I
TITLE: CDL1, A COMPUTER DESCRIPTION LANGUAGE 5T
AUTH.: SRINIVASAN CHITTOOR V 5AP
AUTH.: RCA LABORATORIES PLACE: NEW JERSEY PRINCETON 08450 5P
DATED: 69.07 5P

CITES: 5C
5V

I.D.: STANTA67DDF AD 658042 MD 56181 AFOSR 67 264 5IM
TITLE: DATA DEFINITION FACILITY FOR PROGRAMMING LANGUAGES 5T
AUTH.: STANDISH T A 5AP
AUTH.: CARNEGIE INSTITUTE OF TECHNOLOGY DEPARTMENT OF COMPUTER 1P
SCIENCE PLACE: PENNSYLVANIA PITTSBURGH 15216 DATED: 2P
67.05.18 5P

CITES: ABRAP-66L2- ANDERH66TDS BACKJW59SSP BERGC-62TGA 3C

BOBRDG64MLI	BOBRDG64NLI	BOBRDG--QAS	BOHMC-66FDT	BONDE-64FEF	3C
BROORA67ECC	BROORA62GTP	BROWWS64ASN	CHURA-41CLC	D*IMM-64DST	3C
EARLJC67MSS	ENGLC-65POM	EVANAM65SAP	FELDJA64FSC	FELDJA66FSC	3C
FENIRR66OSA	FLOYRW61DLS	FLOYRW66SCC	GALLBA67PDA	HOGMCD56HCP	3C
HOARCA65RH-	HOLTAW65MMM	INGEPZ66SOT	ITURR-67CMM	KLERM-65TDP	3C
KNOGKC66PDL	KNUTDE65TLL	KNUTDE63CDF	LANDPJ64MEE	LEDEJ-65DSC	3C
LEDEJ-66SOM	LINDRK65ESD	MCCAJ-64DND	MCCAJ-60RFS	MCCAJ-62L1P	3C
MOSEJ-66SI-	NARAR-66SDI	NAURP-63RRA	NEWEA-64IPL	NEWEA-64PCS	3C
PERLAJ60SMT	PERLAJ64FL-	PEKLAJ66SAS	PERLAJ66DFA	-IBM--66PLS	3C
QHATJT65VDS	ROBELG64GCC	ROSES-64CBS	ROSSDT61GTS	SAMMJE62BEC	3C
SAMMJE66SFM	SCOTAE58APF	SHERPM66FCP	SKILHM57EEC	SLAGJH61HPS	3C
STANTA66PLD	STRAC-66CWP	SUTHWR66CLD	-USGPO61CRS	VAN RP66FMA	3C
VAN ME60IMN	WARSS-62TBM	WEIZJ-66SLP	WELL--63---		5C
					5V

I.D.: VESEVM67AAL AD 695921 MD 61072 FTD-MT-24-498-68 5IM
 TITLE: ALGORITHMS AND ALGORITHMIC LANGUAGES TRANSLATED FROM 1T
 RUSSIAN 5T
 AUTH.: VESELOV V M KOPROV V M 5AP
 TITLE: OBNINSK FIZIKO-ENERGETICHESKIY INSTITUT DOKLADY DATED: 2P
 67 TRANSLATED: 69.05.12 INDEXED: 71.03.31 VOL.: 81 5P
 PP.: 0001-0027 5P

CITES: BACKJW59SSP BEKU--65AAL KLINSK57IM- MAL'AI65ARF 3C
 MARKAA54TA- MARKAA51TA- TURCVFXXMAL TURCVF66MFD ZHOMN-61TMD 5C
 KEY WD.: COMPUTER LANGUAGE ALGORITHMIC LANGUAGE ALGORITHM 5K
 5V

I.D.: VESEVM67AAL AD 702909 MD 63960 FTD-MT-24-415-69 5IM
 TITLE: ALGORITHMS AND ALGORITHMIC LANGUAGES TRANSLATED FROM 1T
 RUSSIAN 5T
 AUTH.: VESELOV V M KOPROV V M 5AP
 PUB.: FIZIKO-ENERGETICHESKIY INSTITUT DATED: 67 TRANSLATED: 2P
 69.01.06 INDEXED: 71.04.15 PP.: 0001-0027 5P

CITES: 5C
 KEY WD.: ALGORITHM ALGORITHMIC LANGUAGE/(U) ALGOL 60 LANGUAGE 3K
 (U)M20 DIGITAL COMPUTER 5K
 5V

I.D.: WILSDM65C7C 5IM
 TITLE: CAT: A 7090-3600 COMPUTER-AIDED TRANSLATION 5T
 AUTH.: WILSON DONALD M MOSS DAVID J 5AP
 TITLE: COMMUNICATIONS OF THE ACM VOL.: 8, NO. 12 PP.: 2P
 0777-0781 DATED: 65.12 5P

CITES: MCKEWM65PD- 5C
 KEY WD.: 5K
 5V

I.D.: -COMPC68JPS AD 835453 MD 55840 118-8, 118-7 (APP. I), 118- 0IM
 1 (APP. II) RADC-TR-68-166, VOL. I (OF 2) 5I
 TITLE: JOVIAL PROGRAM SUPPORT SYSTEM, VOLUME I--SYSTEM MANUAL 5T
 AUTH.: COMPUTER COMMAND AND CONTROL COMPANY 5AC
 PLACE: PENNSYLVANIA PHILADELPHIA WILFORD BUILDING, 33RD & ARCH STREETS 1P
 19104 DATED: 68.05 5P

CITES: 5C
 KEY WD.: COMPUTERS PROGRAMMING (COMPUTERS) 5K
 5V

I.D.: -COMPC68JPS AD 835270 MD 55479 118-6 PADC-TR-68-166, 11M
 VOL. II (OF 2) 5I
 TITLE: JOVIAL PROGRAM SUPPORT SYSTEM, VOLUME II--SYSTEM USER'S 1T
 GUIDE 5T
 AUTH.: COMPUTER COMMAND AND CONTROL COMPANY 5AC
 PLACE: PENNSYLVANIA PHILADELPHIA WILFORD BUILDING, 33RD & ARCH STREETS 1P
 19104 DATED: 68.05 5P

 CITES: 5C
 KEY WD.: COMPUTERS PROGRAMMING (COMPUTERS) 5K
 5V

I.D.: -COMPS70APT AD 702058 FINAL TECHNICAL REPORT PART II 5IM
 TITLE: ADVANCED PROGRAMMING TECHNIQUE FOR A COST-EFFECTIVE HARDWARE- 0T
 INDEPENDENT REALIZATION OF NAVAL SOFTWARE SYSTEMS 5T
 AUTH.: COMPUTER SYMBOLIC, INC. PLACE: D.C. WASHINGTON MCPHERSON 1P
 SQUARE OFFICE BUILDING 920 15TH STREET, N.W. 20005 DATED: 2P
 70.02 5P

 CITES: -COMPS--FR- -LOCKM67MXP MAURWV69CMA ORGARJ69BMP 3C
 VANDJE69SGS 5C
 KEY WD.: ASSEMBLY SYSTEMS COST-EFFECTIVE SOFTWARE HARDWARE 1K
 INDEPENDENCE NAVAL SOFTWARE PSEUDO ASSEMBLY LANGUAGES 5K
 5V

I.D.: -ESD--70UMC AD 711369 ESD-TR-70-274 5IM
 TITLE: USER'S MANUAL COBOL COMPILER VALIDATION SYSTEM 5T
 AUTH.: ELECTRONIC SYSTEMS DIVISION DIRECTORATE OF SYSTEMS DESIGN & 1P
 DEVELOPMENT PLACE: MASSACHUSETTS BEDFORD L G HANSCOM FIELD 1P
 01730 DATED: 70.07 5P

 CITES: 5C
 KEY WD.: COBOL COMPILER VALIDATION 5K
 5V

I.D.: -ESD--70UMJ AD 711370 ESD-TR-70-278 5IM
TITLE: USER'S MANUAL JOVIAL COMPILER VALIDATION SYSTEM 5T
AUTH.: ELECTRONIC SYSTEMS DIVISION DIRECTORATE OF SYSTEMS DESIGN 1AC
& DEVELOPMENT PLACE: MASSACHUSETTS BEDFORD L G HANSCOM FIELD 1P
01730 DATED: 70.07 5P

CITES: 5C
KEY WD.: JOVIAL J-3 (J3) COMPILER VALIDATION 5K
5V

I.D.: -FOCCP68JPL AD 672933 FOCCPAC TECH NOTE 3 128365 5IM
TITLE: JOVIAL PROCEDURE LIBRARY 5T
AUTH.: PACIFIC FLEET FLEET OPERATIONS CONTROL CENTER 5AC
PLACE: CALIFORNIA SAN FRANCISCO DATED: 68.04 5P

CITES: 5C
5V

APPENDIX B

EXAMPLE OF DOCUMENT CONTROL DATA - R & D,
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4. DESCRIPTIVE NOTES (Type of report and inclusive dates) IN-HOUSE		
5. AUTHOR(S) (First name, middle initial, last name) Philip Gilbert William G. McLellan		
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13. ABSTRACT A compiler generation system is described which is rigorously based and which allows formal specification both of the source (procedure oriented) languages and of the object (machine oriented) languages. An intermediate or "buffer" language, BASE, is interposed, reducing the required transformation techniques described. The system, so far, includes those elements in BASE necessary to produce ALGOL, FORTRAN, and JOVIAL compilers. This paper was presented at the 1967 Spring Joint Computer Conference.		

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APPENDIX C

IDENTIFIERS FOR CORPORATE NAMES

AFSCF	Air Force Satellite Control Facility, Computer Program Integration Contractor
AICE	American Institute of Chemical Engineers
API	American Petroleum Institute
ARMY	U.S. Army
AUERC	Auerbach Corporation
BELLT	Bell Telephone Laboratories, Inc.
CA	Computer Abstracts
CAA	Computers and Automation
CARIT	Carnegie Institute of Technology
CB	Computer Bulletin
CDPSC	Computing and Data Processing Society of Canada
CJ	Computer Journal
CODAS	CODASYL Systems Committee
CR	Computing Reviews
CRPC	Chemical Rubber Publishing Company
CSC	Computer Sciences Corporation
DATAM	Datamation
DATAP	Data Processing Inc.
DCA	Defense Communications Agency

ESD	U.S. Air Force, Electronic Systems Division
FEDEL	Federal Electric Corporation
HARVU	Harvard University
IBM	International Business Machines Corporation
IPJ	Information Processing Journal
NAA	North American Aviation, Inc.
OASD	Office of Assistant Secretary of Defense (Comptroller)
PHILC	Philco Corporation
RAND	Rand Corporation
SDC	System Development Corporation
UNILL	University of Illinois
UNIVA	UNIVAC
USAF	U.S. Air Force
USASI	U.S. of A. Standards Institute
USGPO	U.S. Government Printing Office
WESCO	Westinghouse Electric Corporation

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13. ABSTRACT <p>The structure of bibliographies in computer-accessible form is described. Its design seeks to use the capability of an existing general-purpose text-processing system to query a file interactively in such a way as to increase the automation available to readers consulting a bibliography. A bibliography on software transferability was compiled for automated access with the MITRE test-processing system, SHOEBOS. Sources and formats are described, followed by the bibliography itself.</p>			

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
BIBLIOGRAPHIES						
COMPUTER PROGRAMS						
DATA RETRIEVAL						
DATA STORAGE						
INDEXES						
INFORMATION RETRIEVAL						
SEARCH STRUCTURING						
TRANSLATOR ROUTINES						

